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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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MERCHANT & GOULD PC
P.O. BOX 2903
MINNEAPOLIS, MN 55402-0903

EXAMINER	
HUYNH, PHUONG N	
ART UNIT	**PAPER NUMBER**
1644	

MAIL DATE	DELIVERY MODE
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/692,299	FERRARA ET AL.	
	Examiner	Art Unit	
	Phuong Huynh	1644	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *three* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *10/26/07*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,6-8,12 and 30-37* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,6-8,12 and 30-37* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *12 January 2006* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 10/26/07 has been entered.

2. Claims 1, 6-8, 12 and 30-37 are pending and are being acted upon in this Office Action.

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claims 1, 7, 12, 30, 32, 34, and 36 stand rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor, at the time the application was filed, had possession of the claimed invention.

The specification does not reasonably provide a **written description** of (1) any isolated EG-VEGF polypeptide comprising at least 95% identity to amino acid residues 20 to 105 of SEQ ID NO: 2 wherein the polypeptide promotes proliferation of adrenal cortex-derived capillary endothelial cells, (2) any isolated EG-VEGF polypeptide comprising "at least 95% identity" to SEQ ID NO: 2 wherein the polypeptide promotes proliferation of adrenal cortex-derived capillary endothelial cells, and (3) any chimeric polypeptide comprising any isolated EG-VEGF polypeptide comprising at least 95% identity to amino acid residues 20 to 105 of SEQ ID NO: 2 or any isolated EG-VEGF polypeptide comprising "at least 95% identity" to SEQ ID NO: 2 fused to any heterologous polypeptide.

Claim 1 encompasses any isolated EG-VEGF polypeptide having at least about 95% identity to amino acid residues 20 to 105 of SEQ ID NO: 2 wherein the polypeptide promotes proliferation of adrenal cortex-derived capillary endothelial cells.

Claim 7 encompasses any isolated EG-VEGF polypeptide having at least about 95% to SEQ ID NO: 2 wherein the polypeptide promotes proliferation of adrenal cortex-derived capillary endothelial cells.

Claims 30, 32, 34, and 36 encompass any chimeric polypeptide comprising any EG-VEGF polypeptide having at least about 95% identity to amino acid residues 20 to 105 of SEQ ID NO: 2 or any EG-VEGF polypeptide having at least about 95% to SEQ ID NO: 2 fused to any heterologous polypeptide such as Fc or HIS tag.

The specification discloses only *one* isolated human EG-VEGF polypeptide comprising *the* amino acid sequence of SEQ ID NO: 2 wherein the polypeptide promotes proliferation of adrenal cortex-derived capillary endothelial cells, see page 10, Figure 13A. The secreted or mature EG-VEGF polypeptide comprises amino acid residues 20 to 105 of SEQ ID NO: 2.

The specification has not adequate described which amino acids within the full-length sequence of SEQ ID NO: 2 or the mature polypeptide comprising amino acid residues 20 to 105 of SEQ ID NO: 2 to be substitute, deleted, added and/or combination thereof such that the EG-VEGF variant still maintains its three dimensional structure and function such as promoting proliferation of adrenal cortex-derived capillary endothelial cells. The specification does not describe any other EG-VEGF polypeptide other than SEQ ID NO: 2. The specification does not describe any chimeric polypeptide other than a chimeric polypeptide comprising EG-VEGF of SEQ ID NO: 2 or the mature human EG-VEGF polypeptide comprising residues 20 to 105 of SEQ ID NO: 2 fused to a heterologous polypeptide such as Fc or His tag.

There is not a single sequence or variant of SEQ ID NO: 2 comprising at least 95% amino acid sequence identity with the amino acid sequence comprising SEQ ID NO: 2 or at least 95% sequence identity with the amino acid sequence of residues 20 to 105 of SEQ ID NO: 2. The specification discloses only one EG-VEGF isolated from human. The specification fails to disclose a representative number of species to describe the claimed genus.

One of skill in the art would conclude that applicant was not in possession of the claimed genus because a description of only one member of this genus is not representative of the variants of the genus and is sufficient to support the claim.

Vas-Cath Inc. v. Mahurkar, 19 USPQ2d 1111, makes clear that "applicant must convey with reasonable clarity to those skilled in the art that, as of the filing date sought, he or she was in possession of the invention. The invention is, for purposes of the written description inquiry, whatever is now claimed." (See page 1117.) The specification does not "clearly allow persons of

ordinary skill in the art to recognize that [he or she] invented what is claimed." (See Vas-Cath at page 1116.). The specification does not "clearly allow persons of ordinary skill in the art to recognize that [he or she] invented what is claimed." (See *Vas-Cath* at page 1116).

Thus, Applicant was not in possession of the claimed genus. *See University of California v. Eli Lilly and Co. 43 USPQ2d 1398; University of Rochester v. G.D. Searle & Co., 69 USPQ2d 1886 (CA FC2004).*

Applicant is directed to the Final Guidelines for the Examination of Patent Applications Under the 35 U.S.C. 112, ¶ 1 "Written Description" Requirement, Federal Register, Vol. 66, No. 4, pages 1099-1111, Friday January 5, 2001 as well as the USPTO revised written description guidelines training materials, see Example 14 in particular.

Applicants' arguments filed 10/26/07 have been fully considered but are not found persuasive.

Applicants' position is that claims 1 and 7 as amended recite the limitations of claim 26 and 28 which were not subject to the current written description rejection.

In response, the specification fails to disclose a representative number of species of each claimed genus. The description of a single species within a claimed genus may not be sufficient to support the patentability of the genus under § 112, ¶ 1. *See University of California v. Eli Lilly & Co.,* 119 F.3d 1559, 1567, 43 USPQ2d 1398, 1405 (Fed. Cir. 1997) (noting the court earlier held "a description which renders obvious a claimed invention is not sufficient to satisfy the written description requirement of that invention" and in this case holding disclosure of a species did not provide adequate written description of a genus). *Cf Eli Lilly & Co. v. BarrLabs,* 251 F.2d 955,971, 58 USPQ2d 1869, 1880 (Fed. Cir. 2001) ("later genus claim limitation is anticipated by, and therefore not patentably distinct from, an earlier species claim"). With respect to the written description requirement, while "examples explicitly covering the full scope of the claim language" typically will not be required, a sufficient number of representative species must be included "to demonstrate that the patentee possessed the full scope of the [claimed] invention." *Lizardtech, Inc. v. Earth Resource Mapping, Inc.,* 424 F.3d 1336, 1345, 76 USPQ2d 1724, 1732 (Fed. Cir. 2005).

In this case, the specification discloses only one isolated human EG-VEGF comprising the amino acid sequence of SEQ ID NO: 2 and chimeric fusion protein comprising SEQ ID NO: 2 fused to Fc or His tag. None of these sequences varies amino acids 20 to 105 of SEQ ID NO: 2 or SEQ ID NO: 2, and thus these sequences are not representative of the genus. Further, the

specification has not described which domains of SEQ ID NO: 2 are correlated with binding and promotes proliferation of adrenal cortex-derived capillary endothelial cells and thus have not described which of EG-VEGF's amino acids can be varied and still maintain binding. Thus, under *Lilly* and its progeny, their specification would not have shown possession of a sufficient number of sequences of their claimed genus. *Cf. Enzo*, 323 F.3d at 964, 63 USPQ2d at 1612.

Without a correlation between structure and function, the claim does little more than define the claimed invention by function. That is not sufficient to satisfy the written description requirement. *See Eli Lilly, 119* F.3d at 1568, 43 USPQ2d at 1406 ("definition by function ... does not suffice to define the genus because it is only an indication of what the gene does, rather than what it is").

Accordingly, One of skill in the art would not recognize that applicants were in possession of a genus of EG-VEGF polypeptide comprising the amino acid sequence of SEQ ID NO: 2, wherein the polypeptide comprising at least 95% amino acid sequence identity with residues 20 to 105 of SEQ ID NO: 2 or at least 95% amino acid sequence of SEQ ID NO: 2. Therefore, only an isolated EG-VEGF polypeptide comprising the amino acid sequence of SEQ ID NO: 2 wherein the polypeptide promotes proliferation of adrenal cortex-derived capillary endothelial cells meets the written description provision of 35 U.S.C. § 112, first paragraph. Applicant is reminded that *Vas-Cath* makes clear that the written description provision of 35 U.S.C. § 112, first paragraph, is severable from its enablement provision (see page 115). Because the EG-VEGF polypeptide variants mentioned above are not adequately described, it follows that any chimeric polypeptide comprising such EG-VEGF variant fused to a heterologous polypeptide is not adequately described.

5. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re*

Van Ornum, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

6. Claims 1, 6-8, 12, and 30-37 stand rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-4 of U.S. Patent No. 7,119,177. Although the conflicting claims are not identical, they are not patentably distinct from each other because of the following reasons.

Claim 1 of instant application recites an isolated EG-VEGF polypeptide comprising at least 95% amino acid sequence identity with the amino acid residues 20 to 105 of SEQ ID NO: 2, wherein the polypeptide promotes proliferation of adrenal cortex-derived capillary endothelial cells (genus). Claim 6 of instant application recites the isolated EG-VEGF polypeptide comprising amino acid residues 20 to 105 of SEQ ID NO: 2, wherein the polypeptide promotes proliferation of adrenal cortex-derived capillary endothelial cells (genus). Claim 7 of instant application recites the isolated EG-VEGF polypeptide wherein the polypeptide comprises at least 95% identity to SEQ ID NO: 2 and wherein the polypeptide promotes proliferation of adrenal cortex-derived capillary endothelial cells (genus). Claim 8 of instant application recites an isolated EG-VEGF polypeptide comprising the amino acid residues 20 to 105 of SEQ ID NO: 2, wherein the polypeptide promotes proliferation of adrenal cortex-derived capillary endothelial cells (species). Claim 12 of instant application recites the isolated EG-VEGF polypeptide mentioned above is a human sequence.

Claim 1 of the '177 patent recites an isolated polypeptide comprising: (a) the amino acid sequence of the polypeptide of SEQ ID NO: 371; (b) the amino acid sequence of the polypeptide of SEQ ID NO: 371; lacking its associated signal peptide; (c) the amino acid sequence of the polypeptide encoded by the full-length coding sequence of the cDNA deposited under ATCC

accession number 203091. The polypeptide comprising SEQ ID NO: 371 is 100% identical to the EG-VEGF comprising SEQ ID NO: 2 and inherently promotes proliferation of adrenal cortex-derived capillary endothelial cells. The term "comprising" is open-ended. It expands the residues 20 to 105 of SEQ ID NO: 2 to include the signal peptide to include the polypeptide comprising SEQ ID NO: 371 of the '177 patent. The polypeptide comprising SEQ ID NO: 371 is a human sequence. The polypeptide of SEQ ID NO: 371 lacking its associated signal peptide (claims 1(b) and 2 of the '177 patent) is the same polypeptide having 100% sequence identity with the amino acid residues 20 to 105 of SEQ ID NO: 2 of instant application. Issuance of a patent to instant application (genus) would include the polypeptide of the '371 patent (species).

Newly added claims 30-37 of instant application recite a chimeric polypeptide comprising the polypeptide mentioned above fused to a heterologous polypeptide (genus), heterologous polypeptide such as HIS tag or Fc portion of an immunoglobulin (species).

Claim 3 of the '177 patent recites a chimeric polypeptide comprising a polypeptide according to claim 1 fused to a heterologous polypeptide. Claim 4 of the '177 patent recites the chimeric polypeptide of claim 3, wherein said heterologous polypeptide is an epitope tag or an Fc region of an immunoglobulin (species). The issuance of a patent to a genus of EG-VEGF polypeptide and chimeric polypeptide of instant application would include the species of polypeptide and chimeric polypeptide of the issuance patent.

Applicant's request of the rejection be held in abeyance until allowable subject matter is indicated is acknowledged.

7. Claims 1, 6-8, and 12 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1, 11 and 104-108 of copending Application No. 11/537,382. Although the conflicting claims are not identical, they are not patentably distinct from each other because issuance of a patent to the species of isolated EG-VEGF polypeptide comprising at least 95% amino acid sequence identity with residues 20 to 105 of SEQ ID NO: 2 or at least 95% amino acid identity to SEQ ID NO: 2 of instant application would anticipate a genus of isolated EG-VEGF polypeptide and the isolated polypeptide comprising at least 80 percent identity with amino acid residues 1 to 105 of SEQ ID NO: 2 or amino acid residues 20 to 105 of SEQ ID NO: 2 of the copending application. Further, the instant application also teaches a composition comprising the said EG-VEGF and a pharmaceutically acceptable carrier, see page

25, lines 29-30 of instant application. This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

8. No claim is allowed.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Phuong Huynh, Ph.D. whose telephone number is (571) 272-0846. The examiner can normally be reached Monday through Thursday from 9:00 a.m. to 6:30 p.m. and alternate Friday from 9: 00 a.m. to 5:30 p.m. A message may be left on the examiner's voice mail service. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Christina Chan can be reached on (571) 272-0841. The IFW official Fax number is (571) 273-8300.

10. Any information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Phuong Huynh/
Patent Examiner
Technology Center 1600
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